THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 30

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WEI-SHIN HOU

Appeal No. 1997-1515
Application 08/361,891[1]

ON BRIEF

Before WILLIAM F. SMITH, JOHN D. SMITH and OWENS, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 30-40, 42-44 and 49. Claims 1-27, which are the only

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[1] Application for patent filed December 21, 1994. According to appellant, the Application is a continuation of Application 08/050,840, filed April 21, 1993, now abandoned.

other claim remaining in the application, stand withdrawn from consideration by the examiner as being directed toward a nonelected invention.

THE INVENTION

Appellant claims a process for making an electrophoretic fluid which is suitable for use in an electrophoretic display. Claim 49 is illustrative and reads as follows:

49. A process for forming an electrophoretic fluid for use in an electrophoretic display, comprising:

admixing a first monomer and a crosslinker in a dispersion medium; said dispersion medium being a polar solvent selected from the group consisting of alcohols, ethers, halogenated hydrocarbons, ketones and esters;

adding an initiator and a stabilizer to said dispersion medium so that said first monomer polymerizes to form dielectric polymer particles;

introducing a second monomer and a functional monomer to said dispersion medium, said second monomer and said functional monomer at least partially polymerizing and grafting upon said dielectric polymer particles to provide said particles with a surface functionality that is suitable for charging in an electrophoretic display;

separating said dielectric polymer particles from said dispersion medium; and

dispersing said dielectric particles in a dielectric non-polar solvent, said dielectric non-polar solvent being different from said dispersion medium.

THE REFERENCE[2]

Ahmed 4,992,192 Feb. 12, 1991

THE REJECTION

Claims 30-40, 42-44 and 49 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ahmed.

OPINION

We have carefully considered all of the arguments advanced by appellant and the examiner and agree with appellant that the aforementioned rejection is not well founded. Accordingly, we reverse this rejection.

We need to address only appellant's claim 49, which is the sole independent claim.

Ahmed discloses electrorheological fluids (col. 1, lines 4-5), which are "colloidal dispersions of polymeric particles in a low conductivity continuous medium which show dramatic changes in flow properties when exposed to an electric field"

[2] The examiner refers to Stangroom (U.S. 4,129,513) and Chung (U.S. 4,994,198) in the examiner's answer. These references are not included in the statement of the rejection and, therefore, are not properly before us. *See In re Hoch*, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970).

(col. 1, lines 26-29). The disclosed process for making the fluids includes mixing a monomer, initiator, stabilizer and usually a crosslinker in a continuous phase which can be a halogenated paraffin, and polymerizing the monomer to form hydrophobic core particles (col. 4, lines 25-32; col. 5, lines 7-13). A hydrophilic monomer is added to the dispersion and polymerized to form a hydrophilic polymer shell around the core particles, and
then a neutralizing agent can be added which changes surface acid groups to salts and thereby improves the particles' electrorheological response (col. 8, lines 55-68). A polar liquid, usually water, then is added to make the surface of the particles overly wet and sticky to facilitate bridging under an applied electric force (col. 2, lines 29-36; col. 22, lines 14-23).

The examiner argues that appellant's invention is drawn toward an electrophoretic fluid rather than an electrorheological fluid as disclosed by Ahmed, but that the mere statement of a new use of an otherwise old or obvious composition cannot render a claim to the composition

patentable (answer, pages 5 and 7).[3]

The preamble of appellant's claim 49 states that the process is for forming an electrophoretic fluid for use in an electrophoretic display. The entire specification and the prior art are to be considered when determining the meaning of this claim. *See In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983); *Graham v. John Deere Co*., 383 U.S. 1, 148 USPQ 459 (1966); *In re Voss*, 557 F.2d 812, 194 USPQ 267 (CCPA 1977). It is clear,
in view of appellant's specification, that appellant is claiming a process for making an electrophoretic fluid which is capable of being used in an electrophoretic display (*see, e.g.*, page 5, lines 20-23; page 11, lines 25-27).

The examiner argues that because appellant teaches that the surface functionality of appellant's particles can be varied by introducing functional monomers such as methyl methacrylate (page 10, lines 14-19), and Ahmed teaches that his hydrophilic monomers such as methacrylic acid can be

[3] Appellant's claimed invention actually is directed toward a process rather than a composition as argued by the examiner.

neutralized with various bases to form salts (col. 8, lines 55-68), it appears that appellant's particles and those of Ahmed are the same and that, therefore, Ahmed's particles have a surface functionality which is suitable for charging in an electrophoretic display as required by appellant's claim 49 (answer, page 9). This argument is not well taken because the compositions of Ahmed's methacrylic acid neutralized with the disclosed bases are quite different from those of appellant's functional monomers. The examiner has provided no technical explanation as to why, regardless of this difference, Ahmed's particles have a surface functionality which is suitable for charging in an electrophoretic display.

The examiner argues that "[i]t appears that the reaction of the [i.e., Ahmed's] neutralizing agent with the polymeric hydrophilic shell which changes the surface acid groups into a salt appears to read on the presently required functional monomer" (answer, page 4). We give appellant's claim 49 its broadest reasonable interpretation consistent with the specification. *See In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989); *In re Sneed*, 710 F.2d 1544, 1548,

218 USPQ 385, 388 (Fed. Cir. 1983); *In re Herz*, 537 F.2d 549, 551, 190 USPQ 461, 463 (CCPA 1976); *In re Okuzawa*, 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976). In doing so, we conclude that the claim requires a second monomer and also a functional monomer, i.e., the functional monomer is different from the second monomer (page 9, lines 25-26; page 10, lines 14-19; page 13, line 23; page 14, lines 21-16). Also, appellant's claim 49 requires that the second monomer and the functional monomer both are at least partially polymerized. Ahmed discloses that a monomer is polymerized to form the hydrophilic shell around the hydrophobic polymer core particles (col. 4, line 60 - col. 5, line 2). The examiner has not established, however, that Ahmed's neutralizing agents are polymerized in his process.

Ahmed's disclosure that the formation of a hydrophilic polymer shell around the hydrophobic polymer core particles is followed by addition of a neutralizing agent to the dispersion to change the surface acid groups into salts (col. 8, lines 55-68; col. 22, lines 19-23) indicates that polymerization of the neutralizing agent does not take place.

Regarding the separating and dispersing steps of appellant's claim 49, the examiner argues that Ahmed's teaching (col. 5, lines 20-24) that after the polymerization, the dispersion may be diluted with either the liquid used in the polymerization or with other suitable compatible insulating hydrophobic liquids, suggests separation because it indicates that the particles do not have to remain in the liquid used for polymerization (answer, page 5). The examiner's reasoning is deficient in that the examiner has not explained why, even if Ahmed indicates that the particles need not remain in contact with the original liquid, the reference would have led one of ordinary skill in the art to separate the particles from the liquid and replace the liquid with a different liquid. Particularly, the examiner has not explained why Ahmed would have led such a person to select a polar solvent as the polymerization liquid and a dielectric nonpolar solvent as the solvent into which the separated particles are dispersed as required by appellant's claim 49. The record indicates that the reasoning relied upon by the examiner for using separation rather than dilution comes only

from appellant's specification and not from the reference and, therefore, is based upon impermissible hindsight. *See W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984); *In re Rothermel*, 276 F.2d 393, 396, 125 USPQ 328, 331 (CCPA 1960). The examiner (answer, pages 6 and 8) also relies upon the discussion of the prior art in Ahmed wherein bulk polymers are pulverized into particles which are dispersed in a liquid (col. 2, lines 43-48). The examiner does not explain, however, and it is not apparent, why this disclosure would have fairly suggested, to one of ordinary skill in the art, substituting separation and dispersion for the dilution in Ahmed's process.

In response to appellant's argument (reply brief, page 4) that Ahmed's particles are doped with water, the examiner argues that the "comprising" transition term of appellants' claim 49 opens the claim to unspecified components such as water (supplemental answer, page 2). Ahmed teaches that the water

makes the surfaces of the particles wet and sticky such that bridging is facilitated under the applied electric force (col. 2, lines 29-36). The examiner has not explained, and it is not apparent, why a dispersion containing particles which have such a characteristic would be suitable for use in an electrophoretic display as required by appellant's claim 49. We note that even if the Ahmed process prior to the water doping step is considered, the examiner has not explained, as discussed above, why Ahmed would have fairly suggested, to one of ordinary skill in the art, a process including the steps recited in appellant's claim 49 of introducing and polymerizing a second monomer and a functional monomer such that a fluid is produced which is suitable for use in an electrophoretic display, and of separating the particles from the dispersion medium and dispersing the particles in a dielectric nonpolar solvent.

For the above reasons, the examiner has not set forth a factual basis which is sufficient to support a conclusion of obviousness of the invention recited in appellant's claim 49. Consequently, we reverse the examiner's rejection of this claim and the dependent claims.

DECISION

The rejection of claims 30-40, 42-44 and 49 under 35 U.S.C. § 103 over Ahmed is reversed.

REVERSED

WILLIAM F. SMITH Administrative Patent Judge	)	
JOHN D. SMITH Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
TERRY J. OWENS Administrative Patent Judge	)	

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